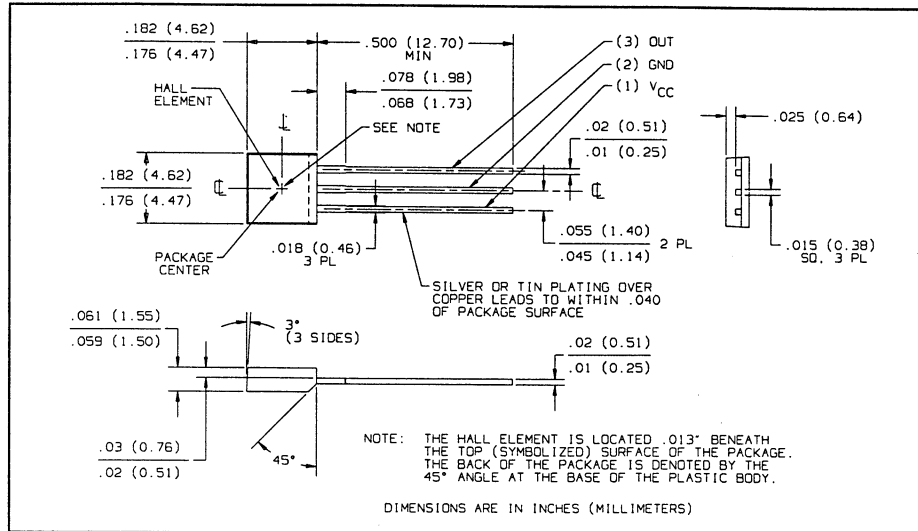
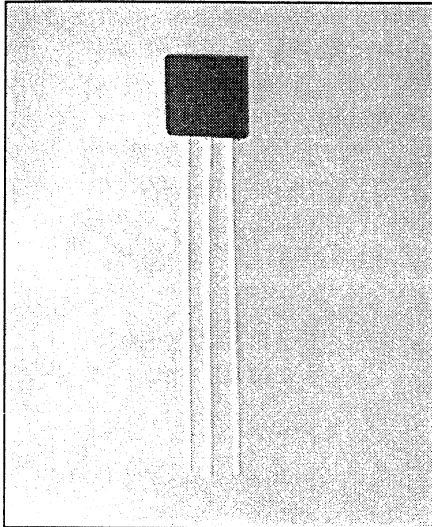


# Hallogic<sup>®</sup> Hall Effect Sensors Type OH090U



## Features

- Operates over a broad range of supply voltages
- Excellent temperature stability to operate in harsh environments
- Drive capability up to 10 TTL loads
- Hall element, linear amplifier, and Schmitt trigger on a single Hallogic<sup>®</sup> silicon chip

## Description

The OH090U contains a monolithic integrated circuit which incorporates a Hall element, a linear amplifier, and Schmitt trigger on a single silicon chip. Included on-chip is a bandgap voltage regulator to allow operation with a wide range of supply voltages. The device features logic level output and provides up to 30 mA of sink current. This allows direct driving of more than 10 TTL loads or any standard logic family using power supplies ranging from 4.5 to 24 volts. Output amplitude is constant at switching frequencies from DC to over 200 kHz.

The OH090U is a high performance device capable of operation from -40° C to +150° C. Stability of the magnetic operate and release points is excellent over this entire temperature range.

Package size has been kept to minimum, providing an advantage in applications where space is limited.

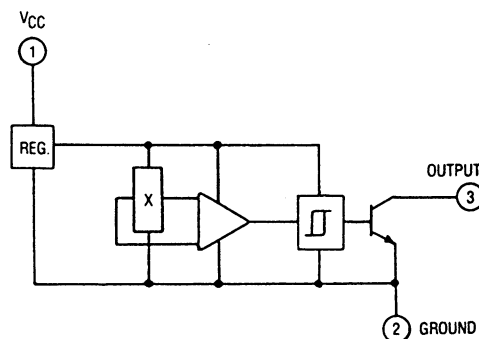
## Absolute Maximum Ratings (T<sub>A</sub> = 25° C unless otherwise noted)

Supply Voltage, V <sub>CC</sub> .....	25 V
Storage Temperature Range, T <sub>S</sub> .....	-65° C to +160° C
Operating Temperature Range, T <sub>A</sub> .....	-40° C to +150° C
Lead Soldering Temperature [1/8 inch (3.2 mm) from case for 5 sec. with soldering iron].....	260° C <sup>(1)</sup>
Output ON Current, I <sub>SINK</sub> .....	50 mA
Output OFF Voltage, V <sub>OUT</sub> .....	25 V
Magnetic Flux Density, B.....	Unlimited

### Note:

(1) Heat sink leads during hand soldering.

## Functional Block Diagram



# Type OH090U

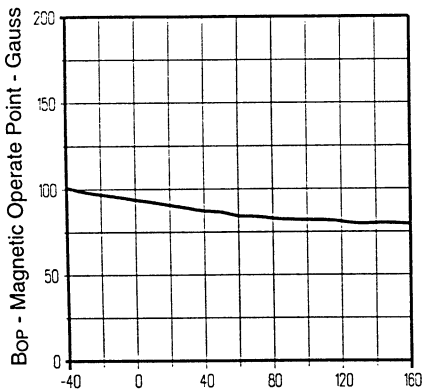
Electrical Characteristics ( $V_{CC} = 4.5 \text{ V to } 24 \text{ VDC}$ ,  $T_A = 25^\circ \text{ C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
B <sub>OP</sub>	Magnetic Operate Point <sup>(2)</sup>	0	90	180	Gauss	
B <sub>RP</sub>	Magnetic Release Point	-100	65	100	Gauss	
B <sub>H</sub>	Magnetic Hysteresis	10	25	100	Gauss	
I <sub>CC</sub>	Supply Current		6	9	mA	$V_{CC} = 24 \text{ V}$ , Output On
V <sub>OL</sub>	Output Saturation Voltage		100	300	mV	$V_{CC} = 4.5 \text{ V}$ , I <sub>OL</sub> = 30 mA
I <sub>OH</sub>	Output Leakage Current		0.50	10.0	μA	$V_{CC} = 24 \text{ V}$ , V <sub>OUT</sub> = 24 V
t <sub>r</sub>	Output Rise Time		0.30	1.00	μs	R <sub>L</sub> = 820 Ω, C <sub>L</sub> = 20 pF
t <sub>f</sub>	Output Fall Time		0.30	1.00	μs	

(2) South pole facing symbolized surface.

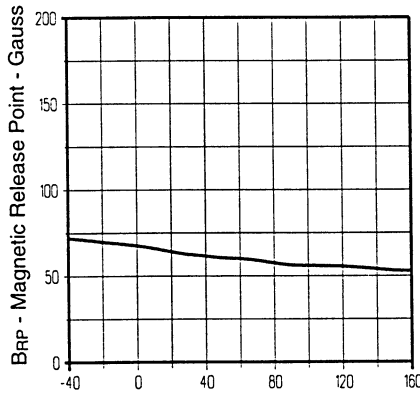
## Typical Performance Curves

Magnetic Operate Point vs Ambient Temperature



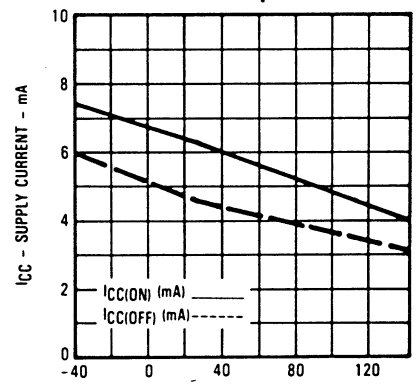
TA - Ambient Temperature - °C

Magnetic Release Point vs Ambient Temperature



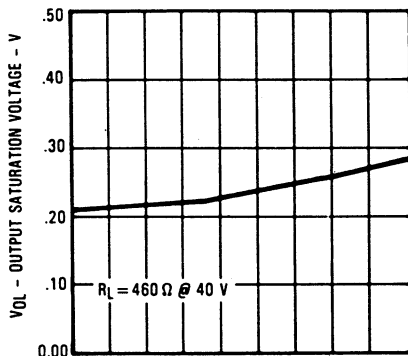
TA - Ambient Temperature - °C

Supply Current vs Ambient Temperature



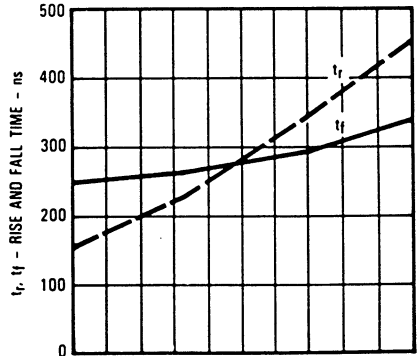
TA - AMBIENT TEMPERATURE - °C

Output Saturation Voltage vs Ambient Temperature



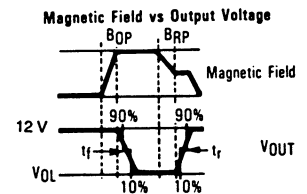
TA - AMBIENT TEMPERATURE - °C

Rise and Fall Time vs Ambient Temperature

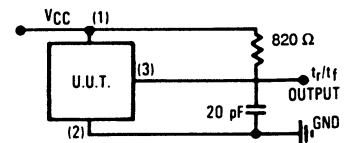


TA - AMBIENT TEMPERATURE - °C

Rise and Fall Time Tests



Rise and Fall Time Test Circuit



Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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